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Improving the Use of Food Rations In Title II Maternal/Child Health and Nutrition Programs

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Recommendations for Improving the Use of Food Rations
In Title II Maternal/Child Health and Nutrition Programs:
Examples from Bolivia and Peru
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I. Introduction

USAID defines food security as a situation in which "all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life." Thus to be food secure, households and individuals must have food *available* to them, must have *access* to food, and must be able to fully *utilize* food once it is consumed. (USAID Food Security Policy Paper, 1995). To achieve food security, USAID and its Title II Cooperating Sponsors (CSs) design integrated programs that address one or more of these components of food security. These programs include activities in one or more of the following areas: health and nutrition, agriculture, infrastructure development, education, and income-generating activities. Maternal Child Health and Nutrition (MCHN) programs play a key role in this integrated approach, as they address the way food is utilized by populations to improve their health and nutritional status in an effort to reduce malnutrition among children and women in their childbearing years.

Many Title II programs use food rations as part of their MCHN programs. Over the last several years debate has focused on the appropriate use of food rations and how to improve the efficiency and effectiveness of this important resource. To date evidence conclusively demonstrating the impact of food in MCHN programs has been lacking. But a review of existing literature highlights three important lessons learned from using food in such programs. First, food provided without complementary maternal/child health and nutrition services has little measurable impact. Second, sharing of food among household members is a common practice that limits the nutritional impact of food aid for children suffering from malnutrition. Finally, the monitoring and evaluation components of MCHN programs need to be strengthened to demonstrate the nutritional and health impacts on the targeted populations.

This paper contributes to the debate over food rations in MCHN programs by providing concrete examples and steps, based on experience in two Latin American countries, for designing and executing such projects. The paper is organized around three alternative strategies that have been used in different settings to achieve the main goal of reducing child malnutrition: *recuperation*, for children already experiencing malnutrition; *prevention*, in high-risk communities; and *incentive*, an approach based on compensating women for participating in MCHN programs by providing a small food ration.

II. Methodology

This document has been developed to assist program managers in designing Maternal and Child Health and Nutrition programs using Title II food. It is the result of a consultative process involving representatives of USAID/La Paz and USAID/Lima; Title II Cooperating Sponsors implementing MCHN programs in Bolivia and Peru; representatives of both countries' ministries of health; Food Aid Management (FAM); the Food and Nutrition Technical Assistance Project (FANTA); and its subcontractor, Tufts University School of Nutrition Science and Policy. The purpose of the review was to systematize experiences in Peru and Bolivia, and thus provide a

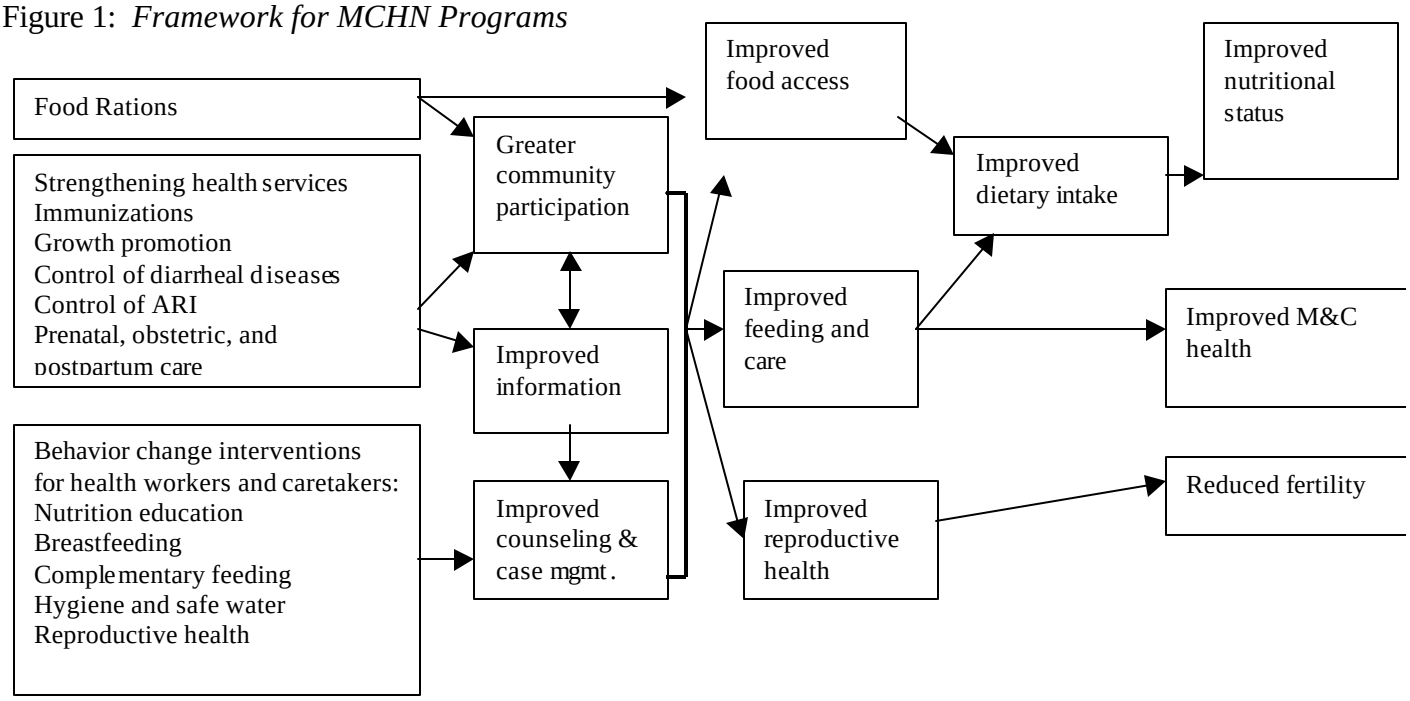
framework for others wishing to incorporate food rations into MCHN programs.

The process began with a review of the literature on global experiences using food in MCHN programs. Field visits and interviews with staff from MCHN programs in Bolivia and Peru were conducted to document current practices in use of Title II food and to determine how the provision of this food is viewed by beneficiaries, community members, and program staff. Finally, a workshop was held to discuss and recommend best practices for using food. While the paper is based on experiences in Title II programs in Bolivia and Peru, most of its recommendations can be generalized or adapted to other contexts. It is hoped that this document will serve as a basis for MCHN programs in other countries and continents to undertake similar analyses.

III. Elements of MCHN Programs

The main objectives of most Title II-funded MCHN programs are to reduce the prevalence of malnutrition and improve the health of vulnerable groups, especially women and children. Figure 1 describes the conceptual framework in which Title II MCHN programs operate. MCHN programs contribute to the food security of a community because (a) *access* to food is improved through the delivery of a food ration, and (b) participation in health and nutrition activities improves the *utilization* of food by promoting behavior change, which has a positive impact on health and nutrition status.

Figure 1: *Framework for MCHN Programs*



Food can be an important resource supporting the achievement of MCHN program objectives. For example, distribution of a food ration may contribute directly to reducing malnutrition in a community where access to food is limited. Food can also contribute, indirectly, by motivating mothers to participate in education and training activities promoting practices that will improve household health and nutrition.

While this document focuses primarily on strategies for using food rations in MCHN programs, the authors recognize that food alone is not sufficient to achieve MCHN program objectives. Almost all Title II-funded MCHN programs are integrated with other interventions designed to improve food security. Such interventions include developing or improving water and sanitation infrastructure, enhancing agricultural productivity, generating income through microcredit/finance programs, encouraging family gardens, and improving basic education.

To bring about sustainable improvements in nutritional and health status, Title II MCHN programs must include other components related to health and nutrition. These may include:

- Training health promoters and mothers in control of diarrheal diseases and care of respiratory infections
- Education about and promotion of vaccinations for children
- Pre- and post-natal care for pregnant women
- Nutrition education and distribution of micronutrients, such as vitamin A and iron
- Promotion of exclusive breastfeeding and appropriate complementary feeding practices for young children
- Community-based growth monitoring for malnourished children.
- Education/promotion of the use of safe, clean water and personal hygiene
- Information/education about reproductive health services, including family planning and control of STDs and HIV/AIDS.

Another important component of MCHN programs is their promotion of community-based monitoring systems that rely on promoters and families for data and are linked to public and/or private health providers. Such systems are critical, for example, in identifying children suffering from problems requiring referral for high-level medical treatment. Monitoring systems should be designed to enable follow-up by promoters with families to provide support and feedback on a regular basis, and to ensure that new messages and information gleaned from education and training are being applied.

Experience indicates that MCHN programs should be established and operating before a food distribution component is introduced. Food distribution places a logistical burden that can divert program staff time away from other important health and nutrition activities. Moreover, food can easily become the center of the MCHN program if its linkages with other educational and/or health services is not properly communicated and understood in the community. Thus it is more efficient and effective to mobilize the community, train promoters, and install monitoring systems for food distribution prior to its initiation.

Box 1. MCHN Programs in Bolivia and Peru

Bolivia

Four cooperating sponsors (CSs) work with USAID/La Paz to implement Title II programs: Adventist Development and Relief Agency, CARE, Food for the Hungry International, and Project Concern International. All programs have an integrated approach to food security, including MCHN, agricultural productivity and income generation, food for education, and improvements in infrastructure.

Title II programs operate in the most food-insecure regions of Bolivia, where chronic malnutrition is greater than 50% for children under five years of age. All CSs distribute take-home food as part of

their MCHN component, complemented by health and nutrition education sessions in the communities. Other interventions include construction of basic sanitation and water systems, as well as agriculture and income-generation components, which focus on road construction, market promotion, and training in new technologies to increase supply of and access to food. Another critical component to improving food security is Food for Education, under which CSs provide rations for a hot breakfast meal for school children, to improve attendance rates. This program is combined with nutrition education in schools, in hopes that students will carry messages to their communities about reducing malnutrition.

In FY 1998 Bolivia's MCHN programs were estimated to have reached 28,000 mothers and 32,000 children under the age of five years. Resources allocated to MCHN programs totaled $3,312,433.*

Peru

USAID's Title II portfolio in Peru consists of work with six Cooperating Sponsors, of which four operate MCHN components as part of their food security programs (ADRA, CARE, CARITAS, and PRISMA). In most cases, the CSs provide a monthly take-home ration to eligible families with children under five years of age or pregnant or lactating women.

In some communities where CARITAS operates, on-site feeding centers have been established for mothers to bring their young children to receive a nutritious meal while the mother participates in health and nutrition education sessions. CARE does not distribute food, but implements health and nutrition education programs that include use and preparation of local foods as part of the a strategy to reduce malnutrition. In all the communities where CSs implement programs, MCHN components are complemented by other food security strategies, such as improvements in agricultural production and construction of infrastructure, including water systems, basic sanitation facilities, and roads. Families involved in PRISMA, CARE, and ADRA programs that also participate in MCHN activities may be eligible to participate in microcredit programs designed as a long-term strategy to reduce malnutrition.

In FY 1998 Peru's MCHN programs reached approximately 7,500 families and 360,000 beneficiaries. Total resources allocated to MCHN programs was $25,897,232.*

**Source*: Figures taken from 1998 Annual Results Reports submitted by Cooperating Sponsors in Peru and Bolivia to USAID.

IV. Strategies for Using Food Rations in MCHN Programs

Principal Uses of Food

This document is organized around the three principal purposes of food distribution within MCHN programs: *nutritional recuperation, prevention of malnutrition,* and as an *incentive to program participation*. Food used for each purpose contributes to the MCHN objectives of reduced malnutrition and improved women and children's health through different pathways.

Recuperation: Food is used to rehabilitate children suffering from malnutrition. Food is provided to families as a supplement to the diet of the malnourished child, to enable the child to attain normal nutritional status.

Prevention: Food is provided to households with vulnerable members at high risk of malnutrition, with the intention of preventing the members from becoming malnourished.

Incentive: Food is used as a means to motivate mothers to participate in educational activities aimed at improving childcare, health, and nutritional practices and/or encouraging the use of health services. Food also reduces barriers to participation in these activities, since it compensates for the time women spend attending the activities.

For both the recuperation and prevention strategies, the food ration helps to ensure adequate dietary intake, while complementary interventions such as the provision of healthcare services and education of mothers and caregivers on nutritional and health practices bring about sustainable improvements in community health and nutrition practices. These approaches assume that lack of access to food is one of the immediate causes of malnutrition. If additional food is not provided, families will be unable to put their new knowledge about improved behaviors into practice.

In contrast, the "incentive" strategy assumes that improved health and nutrition practices alone can reduce malnutrition, and that food distribution plays only an indirect role by motivating mothers to participate in health and nutrition services and education. Thus, according to the incentive approach, if lack of food is indeed a determinant of malnutrition, programs must link MCHN activities to other food-related interventions, such as food for work, to directly resolve household food deficits.

This document identifies the various steps involved in designing an MCHN program food component under the three different approaches. It recommends that programs involve communities in identifying appropriate uses of food and how it can best be used to complement health and nutrition services and activities. In all cases, the first set of decisions involves defining the regions and communities where the MCHN program will operate. Next, the primary purpose of the food in the MCHN program must be identified. Depending on the purpose, decisions must then be made regarding eligibility criteria for the beneficiary population; composition and size of the ration; criteria governing exit and re-entry of beneficiaries from the food component; and the duration of food distribution and the overall MCHN program.

Strategies for Use of Food Rations

The USAID *Food Security and Food Aid Policy Paper* (1995) clearly establishes that Title II-funded development activities are to be implemented among food insecure populations. Thus all Title II MCHN programs use similar criteria for selecting regions and communities, typically based on indicators of food insecurity and poverty. The identification of geographic areas for Title II interventions is often based on agreements between the government and its development partners, working together to identify high-priority regions. Selection of communities within those regions is based on similar food insecurity and poverty criteria, with additional considerations of accessibility and presence of health services. Given the similarity in objectives for Title-II MCHN programs, criteria for determining the duration of the MCHN program and for suspending distribution of food to individual beneficiaries also tend to be similar. However, based on the purpose of food distribution within an MCHN program, design characteristics associated with the eligibility criteria of beneficiaries, size and composition of the ration, and graduation from and re-entry into the food component often vary. Table I summarizes the design characteristics for each strategy. Subsequent sections describe the design of food components based on each strategy, drawing examples from experiences in Bolivia and Peru.

Table 1: Summary of Design Characteristics for Different Strategies

		Recuperation	**Prevention**	**Incentive**
		Food as food to treat malnourished child	Food as a direct input to prevent malnutrition or maintain adequate nutritional status	Food as a means to reduce barriers and motivate families to participate in services
Step 1	**Selection of regions (same for all purposes)**	▪ Priority areas based on food insecurity ▪ Level of poverty and food insecurity ▪ Prevalence of malnutrition ▪ Potential for development ▪ Population density sufficient to be cost-effective		
Step 2	**Selection of communities (same for all strategies)**	▪ Geographic accessibility ▪ Size of population ▪ Presence of complementary health services ▪ Level of community organization and acceptability ▪ Prevalence of malnutrition		
Step 3	**Selection of beneficiaries**	HHs with malnourished (height/age or weight/age) children ages 6 mo-3 years	HHs with children under 2 years of age and/or pregnant or lactating women	HH with children under 2 years of age and/or pregnant or lactating women
Step 4	**Size of Food Ration**	Based on caloric deficit of household	Based on caloric deficit of household	Based on opportunity cost of participant's time
Step 5	**Composition of food ration**	▪ Fortified nutritional complementary foods ▪ Replaceable with locally available foods ▪ Weaning foods for young children ▪ Culturally acceptable	▪ Fortified nutritional complementary foods ▪ Replaceable with locally available foods ▪ Weaning foods for young children ▪ Culturally acceptable	▪ Foods that the community identifies as attractive ▪ Food that have a nutritional "value-added" ▪ Culturally acceptable
Step 6	**Criteria to "graduate" from receiving food ration**	▪ Based on achievement and maintenance of normal weight ▪ Time-bound	▪ Option 1: Until the age of two years ▪ Option 2: Six months of food, 18 months of MCHN activities	▪ Option 1: 3-6 months ▪ Option 2: until a cycle of training is completed ▪ Option 3: 1-2 years with gradual reduction of food
Step 7	**Criteria for reentry into food distribution component**	▪ Individual: becomes malnourished ▪ Family: second child	Women may reenter during first pregnancy	None
Step 8	**Criteria for suspending food rations (same for all strategies)**	▪ Failure to attend at least three prenatal care visits ▪ Failure of child to complete vaccinations ▪ Failure to attend training sessions ▪ Failure of child to gain weight (with exception of cases of diarrhea and respiratory infections)		

Step 9	**Criteria for graduating communities from MCHN Program while ensuring sustainability (same for all strategies)**	▪ Existence of a well-trained cadre of health promoters ▪ Linkages to local health services ▪ MCHN program linked to other food-security interventions ▪ Functional community organizational structure

V. Strategy-Specific Design Characteristics

This section presents specific design characteristics for MCHN food components, according to the primary purpose of food distribution within an MCHN program. Guidance is presented to help program managers define the characteristics at each step of the design process. The criteria used to define each step may vary, depending on the purpose of the food. Each of the three subsections below describes in greater detail the specific steps to be taken for implementation of each strategy, based on the overall design described in Table 1. Steps eight and nine, which are common to all three approaches, are discussed at the end of the paper, in sections VI and VII, respectively.

"Recuperation" Approach

Step 1: ***Selection of Regions for MCHN Program***

Criteria

- Priority areas based on food insecurity and poverty measures
- Prevalence of malnutrition
- Potential for development
- Population density sufficient to be cost-effective

Regions identified as extremely or highly food insecure or poor should be targeted for Title II-funded MCHN interventions. Many countries have developed poverty or vulnerability maps that identify regions that are particularly poor, underdeveloped, and/or food insecure. Typically, the indicators used to identify poor or food-insecure areas include some combination of the following:

- Prevalence of malnutrition
- Availability of services (water and sanitation, health services, roads)
- Per capita income
- Unemployment or underemployment
- Educational levels
- Social status, such as female-headed households
- Vulnerability to recurrent shocks

The prevalence of malnutrition can be determined based on a height census or survey of children entering primary school, or on weight-for-age of under-five-year-olds, based on ministry of health statistics. Other sources of information on the prevalence of malnutrition are Demographic and Health Surveys (DHS) or other national health-related surveys. National household income and expenditure surveys may identify areas of low income and high unemployment.

Box 2 shows the indicators used in Bolivia to determine regions characterized by high levels of food insecurity.

Another factor that programs may wish to consider when selecting a region is the potential for development. In Peru, for example, USAID, the government of Peru, and Cooperating Sponsors have identified specific areas of the country as "development corridors." These are poor areas with the potential for further economic development through increased food production, access to markets, improved infrastructure, and increased income-earning opportunities. Title II-funded programs in this country will be increasingly concentrated in these regions.

Box 2. Identification of Food-Insecure Bolivian Municipalities

In Bolivia a recent report classified municipalities as food insecure based on cut-offs for four indicators:

1) High or extreme level of poverty; the cut-off was the absolute number of people living in extreme poverty
2) Data from the National Survey on Basic Needs (includes household access to basic health, education, water and sewarge services, and standard living conditions). The cut-off was communities where more than 50% of the households were not meeting their basic needs
3) Infant mortality rate higher than the national average
4) Malnutrition rate, measured by weight-for-height in children under three years of age, being above the national average.

Municipalities were classified as being "extremely" food insecure if they exceeded the cut-offs in all four indicators, and as "highly" food insecure if they exceeded cut-offs in three of the four indicators.

Source: Cariaga & Cariaga, "Analisis para una Estrategia de Seguridad Alimentaria," 1996.

Step 2: ***Selection of Communities***

Criteria

- Geographic accessibility
- Population size and density
- Presence of complementary health services
- Level of community organization and acceptability
- Prevalence of malnutrition

Communities should be reasonably accessible geographically and should have a large enough population so that a reasonable level of impact and cost-effectiveness can be expected. In the case of Peru, food-assisted MCHN programs were operating in various communities where the walking distance to a market or health center varied from one-to-five hours. Accessibility is an important consideration given the need to deliver food on a regular basis, and the fact that supervisory visits by health promoters should be conducted once or twice a month.

Because the effectiveness of MCHN programs depends on coordination with health services, access to public health services should be a criterion for selecting communities in which to work. However, priority should be given to communities where the level of health-related infrastructure (piped water, good sanitation systems) is low, as these communities are likely to be in greatest need of assistance.

The level of interest of a community is another important selection criterion. Communities that are relatively organized and have groups and leaders interested in cooperating with the MCHN program are more likely to make good use of the resources provided and to show success in achieving program goals.

Finally, an important step in selecting a target community is assessing the degree of prevalence of malnutrition. Title II-funded MCHN programs should be working in communities with high levels of food insecurity, as indicated by relatively high levels of child malnutrition (for example, rates above national averages.). In both Peru and Bolivia the communities selected demonstrated a level of stunting in children under five greater than 50%, compared to national averages of 25% and 35% respectively.

However, conducting a national survey of a representative sample of children under three years of age in every community where a MCHN program *might* work would be costly and logistically difficult. Instead, such data may be obtained by:

- Using secondary data and consultations with the Ministry of Health and other local government agencies to identify the most vulnerable communities.
- Once prospective communities have been identified, nutritional status can be determined or verified by community assessments using knowledge, practice and coverage surveys or other sample-based techniques. Many MCHN programs conduct a census of children in selected communities as one of their first activities. These censuses provide another source of data to gauge the extent of malnutrition in a community.

Since the "recuperation" strategy is based on targeting children already suffering from malnutrition, it may be a better choice for communities with relatively *lower* rates of malnutrition than either the prevention or incentive strategy. By targeting food resources only to children already affected by malnutrition, it avoids diverting resources to those less likely to be at risk. The challenge is to justify the use of Title II resources for a program in an area with relatively lower levels of malnutrition. Where prevalence rates are high, however, it is reasonable to assume that a child not malnourished at the time of screening is at high risk of becoming malnourished in the future. This may call for a "prevention" strategy, because the cost of screening may prove prohibitive.

Step 3. ***Selection of Beneficiaries for the Food Component***

Criterion

- Children aged six months to three years who are underweight, wasted, or stunted

The recuperation model targets children based on their anthropometric status, usually focusing on growth faltering. Although the program is structured to provide food to *families*, and the recommended size of the ration is based on family needs, there are no targeting criteria other than the presence of a malnourished child.

Households are eligible to receive food rations based on the presence of malnourished children between the ages of six months and three years. This age range is based on two premises: (1) children under six months of age should be exclusively breastfed, and the focus of the program should be on encouraging and supporting that practice; and (2) the impact of supplementary

feeding programs on the catch-up growth of children over the age of three is extremely limited. The age range six months to three years is the period when additional food (in conjunction with healthcare) can make the greatest difference in a child's growth and development, although the magnitude of the benefit begins to decline after the child completes two years.

Among children below the age of three, inadequate food intake and poor health status is reflected in slowed growth in height and in weight. In this age range, children can achieve catch-up growth in both height and weight if they are given adequate food and care, and they are not suffering from infection or infestation.

When selecting children for a recuperation program, the best indicator is lack of adequate growth over time, for example, over a 3-month period. Focusing on growth rate over time, rather than achieved growth at a single point in time, will allow the MCHN program to capture children who have begun the process of becoming stunted or wasted (growth faltering.) However, a regular system of accurate growth monitoring is necessary to identify such children. Administration of these systems can be demanding, and requires a well-trained staff of promoters and a functioning supervision system.

Given the challenges of accurately using growth faltering as a selection criteria for entry into the MCHN program food component, most programs use current nutritional status, usually underweight status (weight for age) to identify malnourished children. Others use wasting, as measured by weight for height.

Children can be underweight because they are thin or because they are short, or due to a combination of these attributes. The weight-for-height measure will identify the too-thin children. But underweight will identify a broader range of malnourished children, because it captures both children who are too thin, and those who are too short for their age, but may not be too thin; that is, children who are stunted but not wasted.

Step 4. ***Size of the Food Ration***

Criteria

- Caloric deficit of a family of average size and composition
- Add 20% for the additional caloric requirements of the malnourished child.

The food ration in recuperation programs is primarily intended for the individual child suffering from malnutrition. However the ration must be large enough to allow for the inevitable sharing of food within the household to ensure that the target child receives sufficient food. To compensate for intra-family sharing, the ration size should be calculated to meet the average caloric deficit of a household of average size and composition. Then an additional quantity of food, equal to 20% of the caloric needs of the target child, should be added to allow for the extra requirements of catch-up growth and the likelihood of infection, which also imposes additional caloric requirements.

Secondary data can be used to calculate the average caloric deficit for households. Due to the cost and complexity of collecting and analyzing dietary intake data, it is not necessary to collect primary data unless the program has other uses for the data. In the absence of data on household caloric deficit, the program may consider using a calorie deficit estimate of 10-20%, which would

reflect that households in the target areas are meeting 80-90% of their caloric needs.
Ration size does not increase when a family has more than one child in the program. The ration is based on the *family's* needs, in the expectation that the food will be shared and thus represent a supplement to all members. The ration size for a single child is expected to be sufficient to ensure that food is reaching other family members in need.

Step 5. ***Composition of the Food Ration***

Criteria
- Fortified complementary foods
- Replaceable with locally available foods
- Weaning foods for young children
- Culturally acceptable

There are several factors to consider when determining the composition of the ration to be distributed in MCHN programs. First, it is best to select Title II food commodities that are nutritionally dense and balanced, and preferably those fortified with micronutrients known to be low in the local diet (such as iron and vitamin A). Second, providing a variety of foods is important both to complement the local diet and make the food more attractive to the household. Third, whenever possible foods should be easily replaced by locally available food, so that cooking practices taught in the MCHN program, such as new recipes or methods of preparation, can be easily adapted to local foods once Title II foodstuffs are withdrawn. Finally, selecting foods that are culturally acceptable is important to ensure that the household consumes the food.

Since the recuperation strategy focuses on children between six months and three years, a fortified weaning food, or foods that can easily be prepared into a complementary food (such as corn-soy blend and oil) should be part of the ration. Another reason for including a weaning food is that such foods are more likely to be given to the target child and less subject to sharing among all household members.

Step 6. ***Criteria for Beneficiary Graduation from the Food Component***

Criteria
- Based on achievement of normal weight or weight gain
- Time-bound

In Bolivia and Peru, the field experience of Cooperating Sponsors suggests that rations should be provided for at least six months, as summarized in Box 3. This is perceived to be the minimum period for a mother/caregiver to participate in the MCHN program and receive one cycle of health/ nutrition messages. During this period, the target child is monitored for adequate growth in weight and height. A child should be at normal growth (above the cut-offs for underweight or wasting) for three months before the supplementary food is withdrawn, to allow for full and sustained recuperation. If the child has not reached normal growth status within the first six months, or has not maintained normal status for the last three months of the program, then the food may be continued for another six months. If the child has not reached normal growth status by the end of a year of supplementation, it may be concluded that there are other causes than lack of food for the child's lack of growth, and the child is referred for health services. It is recommended that food distribution to the family be discontinued after one year to avoid creating

dependency.

Box 3. Beneficiary Graduation Criteria Used in Bolivia and Peru for the Recuperation Approach

- Six months, with three months at normal weight
- If the child fails to reach normal weight after six months, continue food supplementation for another six months, up to a maximum of 12 months

Step 7. ***Criteria for Beneficiary Reentry to the Food Component***

Criteria

- Individual child: Enters if becomes malnourished again
- Family: May enter if second child becomes malnourished; for more than 2 children investigate causes and refer to health services if necessary

If staff are well-trained and monitoring and supervision sufficient, including feedback to the community and families through regular meetings and home visits, the services provided by the MCHN program should contribute to a long-term, sustained improvement in childcare and feeding practices and household resource management. Therefore it is unlikely that a child, once recuperated, would become malnourished again or that another child from the same family would become malnourished.

However, a household may meet the eligibility criteria for receiving a food ration, even if the household has been in the program before. It is recommended that a program place a limit on such reentries. If a child becomes malnourished multiple times, or if more than two children from the same family become malnourished, this is a signal that the program has not effectively reached the family. When repeated incidence of malnutrition is observed, regular home visits by MCHN program staff, to investigate the causes of this continued problem, is called for. In some cases it may be due to failure of the caregiver to adopt certain behaviors related to child feeding, in which case the program should work more closely with the caregiver to reach suitable solutions.

For example, a family of four may enter the program because their two-year-old is underweight. After six months of receiving food, the child has still not attained nutritional status and remains in the program for another six months, but graduates after being in the program a full year. Then the mother becomes pregnant with a second child. When that child reaches 12 months, he/she is underweight. The family can reenter the food distribution program because their second child is malnourished; but program staff may want to monitor the family with home visits, because it appears that behavior changes have not taken place.

"Prevention" Approach

The prevention approach provides food rations to households with vulnerable group members at high risk of malnutrition. The approach aims to improve the nutrition and health of the community by preventing well-nourished children from becoming malnourished and helping malnourished children achieve adequate nutritional status. The food ration is used to ensure

adequate dietary intake while complementary interventions are provided, such as health services and education of mothers and caregivers on childcare, health, and nutrition practices. Both components are intended to ensure sustainable change in the health and nutrition status of the community.

For the reasons explained in section IV the first two steps, selecting regions and communities, are the same for all three strategies. However, the prevention approach should be used only in communities where levels of malnutrition are high. Where malnutrition prevalence is relatively low, the recuperation approach will result in more cost-effective programming of scarce food, financial, and human resources. A program must work with the community to examine the local situation and determine appropriate cut-off points for high and low malnutrition. In Bolivia and Peru, many programs work only in areas where chronic malnutrition (height/age Z<-2) is greater than 50%.

Step 1: ***Selection of Regions for the MCHN Program***

Criteria

- Priority areas based on food insecurity
  Prevalence of malnutrition
- Potential for development
- Population density sufficient to be cost-effective

Step 2: ***Selection of Communities for the MCHN Program***

Criteria

- Geographic accessibility
- Population size and density
- Presence of complementary health services
- Level of community organization and acceptability
- Prevalence of malnutrition

Step 3. ***Selection of Beneficiaries for the Food Component***

Criteria

Option 1: Homogeneous Communities

- Families with children under two years and/or pregnant or lactating women

Option 2: Heterogeneous Communities

- Families with children under two years and/or pregnant or lactating women
- Level of household food insecurity

Option 1: *Age and Nutritional Status*

The prevention strategy targets families with children based on their age (six months to two years), unlike the recuperation approach, which targets the malnourished child. The prevention approach also targets women, based on their physiological status. Households with children between six months and two years of age are targeted because a food supplement can have the

greatest impact on growth and development during this age range. Targeting households with pregnant women should contribute to a healthier newborn and reduce the likelihood of low birth-weight babies. Targeting lactating women is intended to assure improved intake for these women and their breastfeeding infants.

Option 2: *Socioeconomic Status*

Communities may be described as homogeneous or heterogeneous, depending on the range of socioeconomic status of their households. In poor, homogeneous communities virtually all households are at high risk of malnutrition. This is the justification for focusing on *all* children under the age of two and pregnant and lactating women; no further identification of specific households is necessary. The administrative costs of targeting may be higher than the savings realized by excluding a small number of households from the program. In addition, in a homogeneously poor community, selecting some households for supplementation may be divisive and create resentment.

In economically heterogeneous areas (such as in periurban areas) where income disparities among households are greater, selection of target households should be based on indicators of household food insecurity, such as employment status of the head of household, as well as the age of children and physiological status of women. Selecting certain households for food rations will be less divisive in a community where all households are not equally needy.

Step 4. ***Determining the Size of the Food Ration***

Criterion

- Based on the caloric deficit of a family of average size and composition

The ration is intended to ensure adequate consumption by vulnerable group members, such as young children. In order to compensate for sharing among family members, the ration size should be calculated to meet the average calorie deficit of a household of average size and composition. Secondary data should be used to calculate the average calorie deficit for households. Due to the costs and complexity of collecting and analyzing dietary intake data, even if secondary data is not available programs should not collect primary data on food intake unless the program has other uses for the data. In the absence of data on household calorie deficits, most programs use a calorie deficit estimate of 10-20%, which would reflect that households in the target areas are meeting 90-80% of their calorie needs. Table 2 provides an example of how to calculate ration size under the prevention strategy.

Table 2: Calculating Ration Size for the Preventative Strategy

Step 1: Determine caloric requirements for family; e.g.: 5 members (1 adult male, 1 pregnant or lactating woman, 1 student-age child, 1 child 3-5 years, 1 baby, 6 mo.-2 yrs.)	10, 000 calories
Step 2: Determine actual intake	8,000 calories
Step 3: Determine caloric deficit percentage	$\frac{\text{Caloric Requirement-Actual Intake}}{\text{Caloric Requirment}} = \frac{10{,}000\text{-}8{,}000}{10{,}000} = 20\%$
Step 4: Determine avg. caloric deficit p/ person	2000/5= 400 cal/day
Step 5: Select food ration basket	lentils, bulger, csb,wheat flour

Step 6: Estimate calories p/day-p/ person that food will contribute to diet	Eg: If a person receives 7 kg. wheat flour/mo. containing 3640 cal/kg, this represents 25,480 calories/mo. or 849 calories/day. Divided by 5 persons, equals 141 calories per person/per day

Step 5. ***Composition of the Food Ration***

Criteria

- Fortified complementary foods
- Replaceable with locally available foods
- Complementary foods for young children
- Culturally acceptable

The Title II food commodities selected should be nutritionally dense and balanced, and preferably fortified with micronutrients known to be low in the local diet (particularly iron and vitamin A). A variety of foods should be provided. Whenever possible foods should be easily replaced by locally available food, so that cooking practices taught in the MCHN program, such as new recipes or methods of preparation, can be easily adapted to local foods once the Title II foods are withdrawn. The food should, of course, be culturally acceptable.

Since the prevention approach focuses on children between six months and two years, a fortified complementary food or foods that can easily be prepared into a complementary food, such as corn-soy blend and oil, should be part of the ration. Another reason for including a weaning food is that they are more likely to be given to young children and less subject to sharing among all household members.

Step 6. ***Criteria for Beneficiary Graduation from the Food Component***

Since the prevention approach targets all households with children under two years of age, families should graduate from the food distribution component when their child reaches two years. If a family begins to receive rations during the first month of the mother's pregnancy, they will be receiving rations for almost three years (nine months of pregnancy, six months of lactation, and 18 months until the child turns two). Thus a weakness of this approach is the potential for creating dependency by the family on the supplementary food. To address this concern, two options for graduation are suggested. The appropriateness of these two approaches should be assessed using mid-term and final evaluation of program results to determine which option is most effective and appropriate for the communities.

Option 1
Six months of food rations
18 months of training and participation in MCHN activities

Under this option food is provided to the household for a period of six months from the date of enrollment. The caregiver also participates in educational and training activities focused on improved childcare and health and nutrition practices during the six months that the family is receiving a ration, then for an additional 18 months after food distribution stops. In Bolivia and Peru, it was suggested that two years is needed for a caregiver to complete a free cycle of

education that incorporates messages appropriate to the child's stage of growth and development and brings about behavior change. Most programs encourage continued participation in the MCHN program until the child reaches three years of age.

Option 2
Provide food until a child reaches two years of age
Follow child for one additional year in MCHN activities

Food is provided to households from the time the mother is identified as pregnant through the time that her child reaches the age of two years. Households with no pregnant or lactating women but with a child under two years, receive food until the child reaches two years. During that time, the mother would be expected to attend educational and health promotion activities appropriate to the age of the child, and would be encouraged to continue attending activities even after the food distribution has stopped.

In deciding between these two options a program manager may wish to consider the following factors:

- Level of food insecurity of households in the community
- Other food-security interventions operating in the community, and number of households receiving food rations in addition to the MCHN program
- Availability and quantity of food resources
- Community input and ability to mobilize other resources.

Step 7. ***Criteria for Beneficiary Reentry to the Food Component***

Criterion

- Women who have not completed a full cycle of MCHN activities and are pregnant for the first time

A mother is likely to be most receptive to educational messages and health interventions that are provided at appropriate times during her pregnancy or the growth of her child, because she can apply the knowledge in practice immediately. Therefore, she should be exposed to an entire cycle of educational and health promotion activities timed to coincide with appropriate stages in her child's development. Reentry into the food component for subsequent pregnancies is discouraged, to avoid the unintended effect of encouraging mothers to have more children.

Sustainable improvements in household health and nutrition depend on the quality of services delivered, as well as adoption by the household of appropriate health and nutrition practices. If a mother has completed a two-year cycle of health and nutrition educational messages, and has succeeded in putting her new knowledge into practice, it is unlikely that she will need additional food supplementation. The exception may be cases when food supply is heavily affected by natural disaster or emergency.

However, a woman who has not been through the entire cycle (because she was enrolled after her pregnancy, based on the presence of a child under age two), could re-enroll in the program in the event of a new pregnancy and continue to receive food for six months (under Option 1) or until her child reaches the age of two (under Option 2). In both cases she would be exposed to the entire cycle of educational and health promotion activities.

If a child continues to suffer from malnutrition, the program should investigate the causes. Such children may require access to medical care to treat infections, or additional resources may be needed to supplement household income. The family may need to become involved in other food security interventions. Program promoters and supervisors should assess the situation and work with the family to find appropriate solutions.

Incentive Approach

The incentive approach provides food as a means to motivate caregivers to participate in educational activities aimed at improving childcare, health, and nutrition practices, and/or to encourage them to make use of healthcare services and carry out preventive health care. The provision of food reduces barriers to participation in these activities, since it provides an incentive for the time caregiver's time (opportunity cost). Mothers often need initial encouragement to participate in educational activities until they recognize their value; caregivers who participate in educational activities are incurring a real cost in terms of the time they spend, and food is the compensation for time invested.

The incentive approach uses the same criteria for selecting regions and communities as the prevention and recuperation approaches.

Step 1. ***Selection of Regions for MCHN Program***

Criteria
- Priority areas based on food insecurity
- Prevalence of malnutrition
- Potential for development
- Population density sufficient for cost-effectiveness

Step 2. ***Selection of Communities for MCHN Program***

Criteria
- Geographic accessibility
- Population size and density
- Presence of complementary health services
- Level of community organization and acceptability
- Prevalence of malnutrition

Step 3. ***Selection of Beneficiaries for Food Component***

Criterion
- Families with children under 2 years and/or pregnant or lactating women

The incentive approach is generally used in relatively homogeneous, poor, food-insecure rural areas. Families are not targeted based on socioeconomic status; instead, all households with a pregnant or lactating woman or a child under the age of two are eligible. Priority is placed on this group because improved health and nutrition practices and preventive healthcare have the greatest impact on children under the age of two, and given persistent resources constraints, targeting households with children in this group is recommended.

Many programs focus on households with children under the age of *five*, especially in areas where child mortality rates are high. If the prevalence of diseases such as acute respiratory infections remains high in children aged four and five years, improving households' childcare practices could have a positive effect on these children and the overall health status of the community. A program may consider expanding the age range to include children under five years when prevalence rates for children younger and older than two years are similar. In addition, many national public health programs focus their interventions on children under age five and provide services and education targeted to that age group. It may be difficult for a program to advocate focusing on a more narrowly defined age group while trying to work in coordination with the national health system.

There are, however, two points to consider when choosing to broaden the age group to include children older than two. First, human and financial resources available to the project may be spread too thin, which could lead to a reduction in health and nutrition impact. Second, it will require the development of behavior change messages tailored to a different age group.

Step 4. ***Size of the Food Ration***

Criteria

- Based on opportunity-cost (time) for participation in program
- Estimate ration size based on local prices for donated foods or equivalents

The ration size need only be sufficient to motivate families to participate in the MCHN program. The size is not calculated based on nutritional requirements or food deficits of households. The size of the ration is reflected in its value. A logical approach to determining the size of the ration would be to estimate the opportunity cost (time) that women spend participating in the educational and/or health promotion activities of the program. Opportunity cost refers to the value of productive activities lost when women participate in program activities rather than working for pay or in home production. So, for example, the value of a day spent in MCHN program activities could be estimated as the value of a day's unskilled labor.

However, calculating opportunity cost is a complex task. The calculation must take into account both the formal, paid labor market and the informal labor market, as well as the fact that many people do not work for pay every day. Compensating participants' time at the rate of the daily wage is an upper bound, and is almost certainly an overestimate of its value. It is recommended that the program try to minimize the ration size to cover a greater number of families. Furthermore, participation in health promotion and educational activities is not as onerous as daily labor, and women would almost certainly be willing to participate in return for an incentive lower than the daily wage, although how much lower is not known. Given the lack of information on the size of a ration necessary to encourage full participation among eligible households in a community, it would be extremely useful for MCHN programs to experiment with different ration and sizes (that is, values) in order to determine what is reasonable. Box 4 and Table 3 summarize suggested steps for calculating ration values and size using the incentive strategy.

Box 4. Steps to Calculate Incentive Ration Value and Size Using the Incentive Strategy

1. Obtain information about local, daily unskilled wage rates.
2. Estimate the number of hours worked to earn that wage; calculate local hourly wage rate.
3. Estimate average probability of working in the population (e.g. estimate of number of days worked per month).
4. Multiply hourly wage by probability of working. This is the opportunity cost for an hour of time
5. Estimate number of hours per month in education/health activities
6. Multiply number of hours by opportunity cost. This is the value of the ration.
7. Determine local market values for the commodities or equivalents for inclusion in the ration.
8. Divide desired ration value (from step 6) by local market value of commodity to determine the amount of the commodity needed to reach the required ration value
9. When more than one commodity is included in the ration, program managers will need to experiment with different combinations of commodity amount multiplied by local value until reaching the required ration value.

Table 3: Determining Ration Size Under the Incentive Strategy
(Sample based on Bolivian currency)

Steps	**Information source**	**Calculations**
Information about local daily unskilled wages	Key informants, minimum wage law	25 Bs / day
Calculate the local hourly wage.	Key informants	Average workday is 8 hours 25 Bs/8 hrs= 3.125 Bs/hr
Estimate average probability of caregivers working on any given day	Estimate average number of days/ month spent in income-generating activities by caregiver through focus groups in communities	Caregiver spends 17 days per month on average income generating activities. Average of 24 possible work days per month, based on 6 day work week, and 4 weeks per month Probability of working on any given day = 17 / 24 = .71
Muliply daily hourly wage by probabilty of working		3.125 Bs x .71 = 2.22 Bs equals the opportunity cost of a one-hour time commitment
Estimate number of hours per month of health education activities	Community health workers, program managers, Focus groups (for travel time)	One 2-hour health/nutrition education session held per week Average round-trip travel time to meeting site 2 hours per week. 4 hrs per week x 4 weeks per month = 16 hours
Mulitply number of hours by opportunity cost		16 hours x 2.22 BS per hour = 35.52 Bs
Determine local market values for the commodities	Observation in local market, market prices, other sources	1 kilo of wheat flour costs 3 Bs. 1 kilo of black beans costs 2.5 Bs. (closest equivalent to lentils)
Divide desired ration value by local market value of commodity		If ration were only flour: 35.52 / 3 = 11.84 kg flour/month If ration were only lentils: 35.52 / 2.5 = 14.21 kg lentils
Determine ration composition	Focus groups with community to determine ration composition most useful to household	Focus group identifies 2/3 wheat flour, 1/3 lentils Calculate proportional value and amounts for each commodity 35.52 x .67 = 23.80 BS worth of flour = 23.80 / 3 = 7.93 kg 35.52 x .33 = 11.72 BS worth of lentils = 11.72 / 2.5 = 4.69 kg Final ration size can be rounded up (or down) to create amounts that facilitate repackaging of commodities.

Step 5. ***Composition of the Food Ration***

Criteria

- Title II foods that are available and attractive to the participants
- Foods that are calorie-dense and fortified with micronutrients

The incentive ration should contain foods valued by community members. Among those, the most nutritionally valuable should be selected to increase the availability of calories, protein, and micronutrients. Focus groups conducted with participants could be used to identify desirable foods from the Title II basket. Several alternative foods should be identified, since not all Title II commodities are always available for distribution. Including more than one food in the ration, or varying the foods provided, helps to enhance and maintain the attractiveness of the food to community members.

Step 6. ***Criteria for Beneficiary Graduation from Food Component***

Definitive information is not available regarding the length of time necessary to achieve lasting behavior change among participants in MCH programs. In addition, concern has been expressed that the incentive approach may lead to a perception by participants that food rations are a part of health services, and thus create dependency on rations as a condition for continued participation in the program. Hence, three options for the duration of food provision are suggested. Mid-term and final evaluations of programs are needed to determine the relative effectiveness of the three options.

Option 1

Provide food for a fixed, short-term duration such as three-to-six months—to initiate participation in program

Food is provided for a fixed period to eligible households as a way of introducing them to the program. The purpose of the food is to generate interest and create enthusiasm for continued participation in health-promotion programs, but is not intended to continue during the whole cycle of behavior-change activities. The assumption is that once mothers begin to participate, they will recognize the value of the program and continue to participate and change practices without further need for external motivation or compensation.

The main advantage of this option is that logistic and administrative costs are reduced because food is distributed for a relatively short period of time. In addition, it avoids creating dependency on food supplements. This option also assumes that the quality of health and education activities is high enough to sustain community interest and demand. If this is not the case, the program will not be able to demonstrate its value quickly to the community.

Option 2

Completion of one cycle of education and training in MCHN interventions

Food is provided to eligible households for the entire cycle of behavior-change activities, to encourage participation and compensate for the time/cost of participation in the program. The length of the cycle may vary, depending on the components and how often sessions or activities

are conducted. Variation could be from six months to two years. Food provision is conditional on attendance. The advantage of this option is that attendance may increase, since it is required to receive the food; but it requires more logistical and management time by program staff than Option 1. Also there is a risk that a community will become dependent on the food supplements, especially if the training cycle is longer than one year and other food security interventions, such as income-generating activities, are not taking place.

Option 3

Provide food for one or two years, but gradually reduce the ration size

Under this option, food is provided to eligible households to encourage participation over a period of between one and two years. But as participants begin to appreciate the intrinsic value of the program, the amount of food provided is gradually reduced. Later entrants to the program would receive the reduced amount of food as an incentive. The assumption is that the community's level of support for the program will increase as they recognize the value of the program. As with Option 2, the main advantage is that sufficient time is given to adopt behavior-change practices within the community. Also, dependency is less likely to occur if the ration size is reduced over the duration of the program. However, like Option 2, this option requires more logistical and management time than Option 1.

Step 7. ***Criteria for Beneficiary Reentry into the Food Component***

There is no reentry under the incentive approach. Once a woman has participated in behavior-change activities, there is no basis for repeat participation. Continued participation in the overall MCHN program is based on the quality and perceived value of the services by the community.

VI. Criteria for Suspending Food Distribution

This section addresses step eight of the original table and is applicable to all three strategies. The criteria for suspending food distribution to a household should be based on components of MCHN program design. Some examples include:

- Failure to attend at least three prenatal care visits
- Failure of child to complete vaccinations
- Failure to attend training sessions
- Failure of child to gain weight (except for cases of diarrhea and respiratory infections)

All of the strategies are based on the assumption that reduction of malnutrition and improvements in health and nutritional status will be attained from sustainable behavior changes in health and nutritional practices. The distribution of food to a family may be suspended if the family fails to participate in, and utilize the services and educational activities implemented by, the programs. Under both the recuperation and prevention approaches, food is intended to increase consumption by the target child. However, the impact of this supplement will not be sustainable if it is not accompanied by improvements in household childcare practices and healthcare. Mothers or caregivers whose children are receiving food are expected to ensure that they are in compliance

with the norms of well-baby care: regular check-ups; vaccinations up to date, etc. In addition, they are expected to participate in training on child care and healthy practices. In both Bolivia and Peru, community health promoters are trained to maintain registers for tracking participation in MCHN activities, as well as receipt of food. Referrals are made to the health clinic for families who failed to participate in educational sessions primarily due to illness of a family member. In Bolivia one program reported suspending food to a household if more than three training sessions were missed.

These requirements must be imposed flexibly. If a child has had acute diarrhea or respiratory infections he/she may not show weight gain in a particular month; this would not indicate that food is being withheld. There may be legitimate reasons why a mother cannot attend a specific session. However, food rations should be provided with the understanding that they impose some requirements on the mother or caregiver, which must be met in order for food provision to continue. Program staff should work with communities to establish criteria and meet the requirements to ensure their participation in the program. This may include a schedule for regular home visits by community health promoters and referrals to health services for adequate care.

VII. Duration of Maternal Child Health Programs in a Community

The minimum length of time required for an MCHN program to achieve sustainable health and nutrition improvements is generally considered to be about three-to-five years. Programs in Bolivia and Peru operate, on average, for two to three years in any single community. A program should remain in operation long enough to demonstrate change in the measures of the goals of the program. If change in these measures is not achieved after five years, the reasons for this lack of impact should be investigated to determine whether the program should remain in the community, change its approach, or cease operations.

Mid-term and final program evaluations will provide information to program managers and policymakers on the level of impact of the program. Both quantitative and qualitative methodologies are suggested to collect data that can be used to make a judgment about the effectiveness of the program and, if the program is not effective, to determine whether the cause is poor implementation, a poor match of the intervention to the needs of the community, or a lack of acceptance on the part of the community. This information will be used to decide whether or not the program should be continued in that community. Box 5 highlights some of the questions to consider when deciding whether to continue an MCHN program in a community.

Box 5. Decisions on Continuing MCHN Programs

- *Are the levels of acceptance and awareness of the health and nutritional problems by the community high?* If a community lacks leadership or organization, it may be necessary to reevaluate the effectiveness of operating there. In such cases a community may not have recognized or be interested in resolving the problem, and therefore program impacts will not be achievable or sustainable.
- *Are there weaknesses in program design that can be improved to achieve greater impact?*

1. *Was implementation time sufficient?* If not, consider two options: extend implementation time or add other components to strengthen food security, such as agriculture, credit, education, or other strategies to improve income.
2. *Is the food security analysis valid?* Were food insecurity problems correctly identified? If not, managers may decide to redesign program. If the problem was correctly identified, what areas of program design need to be strengthened (training, supervision and monitoring, logistics)? Carrying out appropriate problem analysis with participation by the community is important.

- *Is the level of coordination with other partners adequate, including other organizations, government officials that can assume responsibility, and links with communities*?

A. Sustainability

MCHN programs using Title II food never remain in a community indefinitely, and thus should provide for the sustainability of their impacts. All three strategies explored in this study involve interventions aimed at changing behaviors, which are expected to be sustained over the long term. Moreover, the participants (mothers and childcare providers) constitute a source of information for other community members and generations, which should contribute to long-term improvement in childcare, health, and nutrition practices.

MCHN programs often rely on trained volunteer health promoters either paid or volunteer. One way to improve sustainability is to ensure that the program leaves behind a cadre of well-trained and motivated health promoters who will continue to work in their communities. Promoters must have links with the public and private healthcare systems, to facilitate referrals of community residents for preventive and curative health services. Ideally, these links would include ongoing training for volunteer health promoters.

MCHN programs are more effective when they are implemented in coordination with other interventions designed to improve the economic status and food security of the communities in which they operate. MCHN and food distribution programs provide an opportunity to address nutrition problems in the short run, while programs to improve agricultural production (for home consumption or sale), access to markets (through the construction of roads, for example), and household income (through training, microcredit programs, the organization of marketing cooperatives, or other programs) are being implemented. Health promoters should be aware of other interventions in the community, so that the messages they deliver can be linked to these interventions and the linkages understood. For example, if a gardening project is being implemented, recommended food consumption practices should reflect the expected production from new gardens.

An additional contribution to sustainability that can be facilitated by MCHN programs is the creation of a functioning community organizational structure. If communities are left with the capacity to manage themselves, they will be able to plan their own development projects, seek funds, and coordinate multiple activities, as well as communicate with the various government entities operating at the community level.

VIII. Next Steps

These recommendations have been developed based on experiences in Bolivia and Peru. Title II

programs in these countries operate in a similar context in regard to level of food insecurity and malnutrition rates. However, each program is distinct and varies according to the local community's circumstances.

This document is a work-in-progress. Program managers who apply the recommendations contained in this document are requested to provide the Food and Nutrition Technical Assistance (FANTA) Project with feedback regarding the usefulness of this document for designing and implementing Title II MCHN programs. FANTA is interested in determining whether additional design stages should be incorporated; whether some elements should be eliminated or altered, and how; and which areas may require additional research. Based on feedback received, FANTA will revise and update this document to reflect the knowledge and experience acquired by field implementers of Title II-funded MCHN programs.